

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Charles D.Y. Sia, et al. Confirmation No.: 4350
Appl'n. No. : 09/055,744
Filed : April 7, 1998
Title : HIV-SPECIFIC CYTOTOXIC T-CELL RESPONSES
Grp./A.U. : 1648
Examiner : Emily M. Le
Docket No. : 1038-746 MIS:jb
Date : October 11, 2005

APPEAL BRIEF

BY FACSIMILE (571) 273-8300

Mail Stop Appeal Brief-Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
U.S.A.

Dear Sir:

1. Introduction

This Appeal Brief is being submitted in triplicate in response to applicants appeal from the Final Rejection of claims 1 and 4 to 11. Authorization to charge the prescribed fee to our deposit account is attached. Three copies of this Appeal Brief are submitted herewith.

2. Extension of Time

Petition is hereby made to provisions of 37 CFR 1.136(a) for an extension of one month of the period for submitting the Appeal Brief. Authorization to charge the prescribed fee to our deposit account is enclosed.

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This application was filed with 15 claims. Claims 12 to 15 are allowed. Claims 2 and 3 have been cancelled. Claims 1, 4, 6, 7, 10 and 11 have been amended. Claims 5, 8, 9 and 11 are unamended. Claims 1 and 4 to 11 are appealed. The claims appealed are listed in an Appendix hereto.

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The present invention is concerned, as defined in claim 1, with a method of generating an HIV-specific cytotoxic T-cell (CTL) response in a host (page 2, lines 26 to 29). The method comprises the steps of administering to the host a T-helper molecule to prime T-helper cells of the immune system of the host and

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subsequently administering to the host a mixture of the T-helper molecule and T-cell inducing HIV-derived molecule to generate an HIV-specific T-cell response in the host (page 2, line 30 to page 3, line 2). Claim 1 is also limited to the generation of the T-cell response in a host possessing MHC class I HLA A2 molecules (page 6, line 33 to page 8, line 16).

The T-helper molecule may be the peptide CLP-243 (SEQ ID No: 10) (claim 4; page 3, lines 12 to 16), which may be administered with an adjuvant (claim 5; page 3, lines 16 to 17).

The T-cell inducing HIV molecule may include a peptide having an amino acid sequence which is that of a portion of an HIV-1 antigen and which contains a T-cell epitope (claim 6; page 3, lines 18 to 20), which may be a portion of the Rev protein of HIV-1 (claim 7; page 3, lines 21 to 22).

The peptide may be a lipopeptide (claim 8; page 3, line 30), particularly where the lipid is palamtoyl or cholesterol (claim 9; page 3, lines 32 to 33).

The method is particularly carried out using CLP-243 as the T-helper molecule and CLP-175 or CLP-176 as the lipopeptide (claim 10; page 3, lines 12 to 16, page 3, line 33 to page 4, line 2).

The mixture of the T-helper molecule and the T-cell inducing HIV-derived molecule may be administered with a suitable adjuvant (claim 11; page 4, lines 3 to 5).

8. Issues

In the Final Action, the Examiner presented two issues:

- (a) Claims 1 and 4 to 11 remain rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. The Examiner considered that the claim(s) contain subject matter which was not described in the specification in such a way as to enable one

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skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This issue is under consideration on this appeal.

(b) Claims 1 and 4 to 11 are provisionally rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 4 to 11 of copending Application No. 09/647,981. The rejection is a provisional one, since the conflicting claims have not been patented. Since the rejection is a provisional one, it is not the subject of this appeal.

9. Grouping of Claims

As can be seen from the discussion below, it is believed that the claims fall together with respect to the rejection made.

10. Argument

(a) The invention

The present invention is based on experimental findings by the inventors:

(1) that two nanomer peptides, CLP-177 and CLP-72, a hexamer designated CLP-178 and a 12-mer designated CLP-182 of the HIV-1 (LAI) REV protein were individually able to bind and stabilize membrane-bound the HLA class I molecule HLA-2; and

(2) that a long peptide (SEQ ID No: 9), encompassing the amino acid residues 52 to 116 of HIV-1 (LAI) Rev proteins and constructed by having a single cholesterol or palamtoyl moiety attached to its amino terminus via a KSS linker to form lipopeptides, CLP-175 and CLP-176 respectively, is capable of eliciting CTL as well as antibody responses in HLA-A2 transgenic mice.

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Having regard to these experimental results, applicants have provided a sound immunization protocol for inducing a HIV-specific cytotoxic T-cell response in a host by initial administration of a T-helper molecule to prime the immune system of the host followed by administration of a mixture of the T-helper molecule and a peptide having an amino acid sequence which is that of a portion of an HIV antigen which contains a T-cell epitope.

In considering the Examiner's rejection of lack of enablement, it is important to consider what is claimed. In independent claims 1 and 10. What is claimed is a method of generating an HIV-specific cytotoxic T-cell response in the host.

(b) Discussion of Rejection

The Examiner considered that the enablement requirement with respect to claims 1 and 4 to 11 has not been met. At the heart of the Examiner rejection is the statement contained in the Office Action of May 27, 2004 that:

"... the nature of the invention is directed to a method that comprises a prime and boost protocol that uses T-helper molecules and T-cell inducing HIV-molecules to generate an HIV-specific cytotoxic (CTL) response in a host. While it is acknowledged... that applicant does 'not promise that the procedure of the invention is a vaccination procedure against HIV and neither does applicants data demonstrate the same'; however, this does not evade the obvious fact that the instantly claimed invention reads on a vaccine method that is used to treat and/or prevent HIV infection through the generation of HIV-specific cytotoxic T-cell response in the host."

In considering compliance of the claims with the provision of 35 USC 112, first paragraph, it is submitted that consideration of what actually is claimed is required. What is claimed in the present application is a method of generating HIV-specific cytotoxic T-cell responses in a host and NOT a vaccine method that is used to treat and/or prevent HIV infection, as asserted by the Examiner in the above quotation.

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The Examiner states in the Final Action that:

"The issue at hand is that the claimed method, in view of the specification, reads on a method of treating or preventing HIV infection. While this is not explicitly recited in the claims, however, claimed matter is interpreted in view of the disclosure." (emphasis added)

The Examiner goes on to say in the Final Action that:

"In the instant [application], the claims recite a method of generating an HIV-specific cytotoxic T-cell response in a host."

This is quite correct, as discussed above, but the Examiner adds another comment:

"However, what biological activity can be ascertained by the generation of an HIV-specific cytotoxic T-cell response in a host? The biological activity that can be ascertained by the implementation of the claimed method is not readily apparent in the claims."

It is submitted that applicants claims do not need to recite a biological activity. It is sufficient for applicants claims that a CTL response is generated in a host and that the recited method steps are used to effect that generation. Nevertheless, the Examiner imposes an additional requirement on applicants language.

The Examiner then turns to the specification and discusses several passages from the disclosure and then concludes, in the Final Action, that:

"Ergo, in view of the disclosure provided by the applicants, the Examiner concludes that the intended purpose of the claimed invention is directed to a protocol for the treatment for and/or prevention of HIV." (emphasis added)

It is submitted that it is improper for the Examiner to interpret applicants claims in this way. Applicants disclosure, while discussing HIV neither describes nor promises a method for the treatment and/or the prevention of HIV. All that applicants promise and demonstrate is a method of generating an HIV-specific CTL response in a host and that is what is claimed.

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It is agreed with the Examiner that, as stated in the May 27, 2004

Office Action, that:

".....it is well known in the art that retroviral infections in general, and HIV infections in particular, are refractory to anti-viral therapies. The obstacles to HIV/AIDS therapy and vaccine formulations are well documented in the literature."

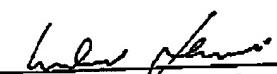
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For these reasons, it is believed that the Examiner is in error in rejecting claims 1 and 4 to 11 under 35 USC 112, first paragraph, for lack of enablement.

11. Summary

Having regard to the above, it is submitted that the rejection of claims 1 and 4 to 11 under 35 USC 112, first paragraph, should be reversed.

Respectfully submitted,



Michael I. Stewart
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FAX No. (416) 595-1163

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APPENDIX
CLAIMS APPEALED

1. A method of generating an HIV-specific cytotoxic T-cell (CTL) response in a host possessing MHC class I HLA A2 molecules, which comprises:
 - administering to the host a T-helper molecule to prime T-helper cells of the immune system of the host, and
 - subsequently administering to the host a mixture of said T-helper molecule and a T-cell inducing HIV molecule which bind to MHC class I HLA A2 molecules to generate an HIV-specific cytotoxic T-cell (CTL) response in the host.
4. The method of claim 1 wherein said T-helper molecule is CLP-243 (SEQ ID No: 10).
5. The method of claim 1 wherein said T-helper molecule is administered with an adjuvant.
6. The method of claim 1 wherein said T-cell inducing HIV molecule includes a peptide having an amino acid sequence which is that of a portion of an HIV-1 antigen, said peptide containing at least one T-cell epitope.
7. The method of claim 6 wherein said peptide having an amino acid sequence which is that of a portion of the Rev protein of HIV-1.
8. The method of claim 6 wherein said peptide is a lipopeptide.
9. The method of claim 8 wherein the lipid is palmitoyl or cholesterol.
10. A method of generating an HIV-specific cytotoxic T-cell (CTL) response in a host possessing MHC class I HLA A2 molecules, which comprises:
 - administering to the host a T-helper molecule which is CLP-243 (SEQ ID No: 10) to prime T-helper cells of the immune system of the host, and

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subsequently administering to the host a mixture of said T-helper molecule and a T-cell inducing HIV molecule capable of binding to MHC class I HLA A2 molecule, said T-cell inducing HIV molecule being CLP-175 or CLP-176 to generate an HIV-specific cytotoxic T-cell (CTL) response in the host.

11. The method of claim 6 wherein said mixture is administered with an adjuvant.

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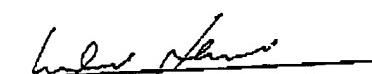
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(2) that a long peptide (SEQ ID No: 9), encompassing the amino acid residues 52 to 116 of HIV-1 (LAI) Rev proteins and constructed by having a single cholesterol or palamoyl moiety attached to its amino terminus via a KSS linker to form lipopeptides, CLP-175 and CLP-176 respectively, is capable of eliciting CTL as well as antibody responses in HLA-A2 transgenic mice.

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Having regard to these experimental results, applicants have provided a sound immunization protocol for inducing a HIV-specific cytotoxic T-cell response in a host by initial administration of a T-helper molecule to prime the immune system of the host followed by administration of a mixture of the T-helper molecule and a peptide having an amino acid sequence which is that of a portion of an HIV antigen which contains a T-cell epitope.

In considering the Examiner's rejection of lack of enablement, it is important to consider what is claimed in independent claims 1 and 10. What is claimed is a method of generating an HIV-specific cytotoxic T-cell response in the host.

(b) Discussion of Rejection

The Examiner considered that the enablement requirement with respect to claims 1 and 4 to 11 has not been met. At the heart of the Examiner rejection is the statement contained in the Office Action of May 27, 2004 that:

"... the nature of the invention is directed to a method that comprises a prime and boost protocol that uses T-helper molecules and T-cell inducing HIV-molecules to generate an HIV-specific cytotoxic (CTL) response in a host. While it is acknowledged... that applicant does 'not promise that the procedure of the invention is a vaccination procedure against HIV and neither does applicants data demonstrate the same'; however, this does not evade the obvious fact that the instantly claimed invention reads on a vaccine method that is used to treat and/or prevent HIV infection through the generation of HIV-specific cytotoxic T-cell response in the host."

In considering compliance of the claims with the provision of 35 USC 112, first paragraph, it is submitted that consideration of what actually is claimed is required. What is claimed in the present application is a method of generating HIV-specific cytotoxic T-cell responses in a host and NOT a vaccine method that is used to treat and/or prevent HIV infection, as asserted by the Examiner in the above quotation.

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The Examiner states in the Final Action that:

"The issue at hand is that the claimed method, in view of the specification, reads on a method of treating or preventing HIV infection. While this is not explicitly recited in the claims, however, claimed matter is interpreted in view of the disclosure." (emphasis added)

The Examiner goes on to say in the Final Action that:

"In the instant [application], the claims recite a method of generating an HIV-specific cytotoxic T-cell response in a host."

This is quite correct, as discussed above, but the Examiner adds another comment:

"However, what biological activity can be ascertained by the generation of an HIV-specific cytotoxic T-cell response in a host? The biological activity that can be ascertained by the implementation of the claimed method is not readily apparent in the claims."

It is submitted that applicants claims do not need to recite a biological activity. It is sufficient for applicants claims that a CTL response is generated in a host and that the recited method steps are used to effect that generation. Nevertheless, the Examiner imposes an additional requirement on applicants language.

The Examiner then turns to the specification and discusses several passages from the disclosure and then concludes, in the Final Action, that:

"Ergo, in view of the disclosure provided by the applicants, the Examiner concludes that the intended purpose of the claimed invention is directed to a protocol for the treatment for and/or prevention of HIV." (emphasis added)

It is submitted that it is improper for the Examiner to interpret applicants claims in this way. Applicants disclosure, while discussing HIV neither describes nor promises a method for the treatment and/or the prevention of HIV. All that applicants promise and demonstrate is a method of generating an HIV-specific CTL response in a host and that is what is claimed.

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It is agreed with the Examiner that, as stated in the May 27, 2004

Office Action, that:

"....it is well known in the art that retroviral infections in general, and HIV infections in particular, are refractory to anti-viral therapies. The obstacles to HIV/AIDS therapy and vaccine formulations are well documented in the literature."

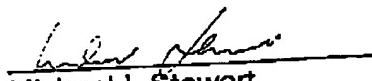
It is for that reason that applicants do not promise to have provided such a therapy.

For these reasons, it is believed that the Examiner is in error in rejecting claims 1 and 4 to 11 under 35 USC 112, first paragraph, for lack of enablement.

11. Summary

Having regard to the above, it is submitted that the rejection of claims 1 and 4 to 11 under 35 USC 112, first paragraph, should be reversed.

Respectfully submitted,


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APPENDIX
CLAIMS APPEALED

1. A method of generating an HIV-specific cytotoxic T-cell (CTL) response in a host possessing MHC class I HLA A2 molecules, which comprises:
 - administering to the host a T-helper molecule to prime T-helper cells of the immune system of the host, and
 - subsequently administering to the host a mixture of said T-helper molecule and a T-cell inducing HIV molecule which bind to MHC class I HLA A2 molecules to generate an HIV-specific cytotoxic T-cell (CTL) response in the host.
4. The method of claim 1 wherein said T-helper molecule is CLP-243 (SEQ ID No: 10).
5. The method of claim 1 wherein said T-helper molecule is administered with an adjuvant.
6. The method of claim 1 wherein said T-cell inducing HIV molecule includes a peptide having an amino acid sequence which is that of a portion of an HIV-1 antigen, said peptide containing at least one T-cell epitope.
7. The method of claim 6 wherein said peptide having an amino acid sequence which is that of a portion of the Rev protein of HIV-1.
8. The method of claim 6 wherein said peptide is a lipopeptide.
9. The method of claim 8 wherein the lipid is palmitoyl or cholesterol.
10. A method of generating an HIV-specific cytotoxic T-cell (CTL) response in a host possessing MHC class I HLA A2 molecules, which comprises:
 - administering to the host a T-helper molecule which is CLP-243 (SEQ ID No: 10) to prime T-helper cells of the immune system of the host, and

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subsequently administering to the host a mixture of said T-helper molecule and a T-cell inducing HIV molecule capable of binding to MHC class I HLA A2 molecule, said T-cell inducing HIV molecule being CLP-175 or CLP-176 to generate an HIV-specific cytotoxic T-cell (CTL) response in the host.

11. The method of claim 6 wherein said mixture is administered with an adjuvant.